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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/917,344	07/27/2001	In Kwon Jeong	9323.050.00-US	1220

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EXAMINER

MACARTHUR, SYLVIA

ART UNIT	PAPER NUMBER
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1763

MAIL DATE	DELIVERY MODE
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06/08/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/917,344

Applicant(s)

JEONG, IN KWON

Examiner

Sylvia R. MacArthur

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-23 and 67-70 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-23 and 67-70 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/3/2007 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 3-23 and 67-70 have been considered but are moot in view of the new ground(s) of rejection. The amendment to claims 67-70 reciting that the first and second transfer robots be located outside the polishing unit and that the robots be positioned on a surface such that the center axis of the first transfer robot is offset from a center axis of the second transfer robot, wherein the center axis of the first transfer robot and the center axis of the second transfer robot are transverse to the surface necessitated another interpretation of Sakurai et al (US 6,358, 131) where the polishing unit is element 10B and the first and second transfer robots is (142/146 and 140/144) and post polishing unit (cleaning units 3). The amendment also necessitated the introduction of the prior art of Sommer (US 6,562,184).

Claim Rejections - 35 USC § 102

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3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 3, 21, and 67-70 are rejected under 35 U.S.C. 102(e) as being anticipated by Sakurai et al (US 6,358,131).

Regarding claim 67: Sakurai et al teaches a system for polishing surfaces of objects comprising a polishing unit (10B), and first and second transfer robots 9, see Fig.1.

Regarding claims 68 and 69: Sakurai et al further teaches a post-polishing unit (cleaning units 3).

Regarding claim 70: Sakurai et al teaches a polishing unit 10B, first & second transfer robots 9, and a post-polishing unit (comprising cleaning units 3).

Regarding claim 3: Sakurai et al further teaches a supply unit 8 and a supply mechanism 6.

Regarding claim 21: Sakurai also teaches an object transfer station 16.

5. Claims 3, 6-8, 10, 11, 21, 23, and 67-70 are rejected under 35 U.S.C. 102(e) as being anticipated by Sommer 102(e)

Regarding claim 67: Sommer teaches a polishing unit (106), first/second transfer robots (142/146 and 140/144), see Fig.1.

Regarding claims 68 and 69: Sommer further teaches post-polishing unit (cleaning unit 8).

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Regarding claim 70: Sommer teaches a polishing unit 106, a first/second transfer robots (142/146 and 140/144), see Fig.1, and post-polishing unit (cleaning unit 108).

Regarding claim 3: Sommer teaches a supply units (101, 102) and a supply mechanisms 110,154.

Regarding claim 6: See Fig. 1 illustrates that the robots 110,154 are mobile to travel between supply units 101/102 to/from the robots (142/146 and 140/144).

Regarding claim 7: See Fig.1 illustrates wafer cassettes 126 (object storage housings) near port 116.

Regarding claim 8: Post polishing unit 108 includes object cleaners (cleaning zones 171).

Regarding claims 10 and 11: A conveyor unshown (dual functioning object transfer mechanism) see col.4 lines 30-55.

Regarding claim 21: A first object transfer station (shuttle table 160,162).

Regarding claim 23: Transfer corridor 124 (second transfer station).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4, 5, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakurai et al in view of Kim et al (US 6,503,365).

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The teachings of Sakurai et al were discussed above.

The teachings of Sakurai et al were discussed above.

Sakurai fails to teach vertically movement of the cassettes (storage housings) or wafers between each of the polishing units.

Kim et al teaches a multichamber system having compact installing set up. Kim teaches the advantages of using vertical movement in transportation of wafers in and throughout a multichamber processing system. Fig. 5 illustrates the motivation of using vertical movement to decrease the footprint of the multichamber system. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to use vertical movement as a means of transporting wafers in a multichamber system.

8. Claims 9, 12-16, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakurai et al in view of Wang.

The teachings of Sakurai et al were discussed above.

Regarding claims 9 and 22: Sakurai et al fails to teach a thickness measurement unit.

Wang teaches an optical dielectric thickness monitor 42 for CMP (a form of cleaning). The motivation to provide a way to monitor the progress of the cleaning process as cited by Wang in col. 3 lines 6-19 is that the monitor of Wang provides timely thickness measurements on the layer being cleaning. Thus, ensuring a more efficient and reliable cleaning process.

It would have been obvious to modify the apparatus of Sakurai et al with the thickness monitor of Wang to ensure the efficient optimal cleaning result.

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Regarding claims 12, 13, and 16: Sakurai et al teaches first and second object cleaners 3, supply mechanism (robot 6) and supply unit 8.

Regarding claims 14 and 15: Sakurai et al fails to teach third and fourth polishing chambers.

Kim et al teaches a plurality of processing chambers wherein at least four of them could be polishing chambers. The motivation to design the processing chambers of Kim et al as specifically polishing chambers is well within the design choice of one of ordinary skill in the art. Using the apparatus of Sakurai et al it is a matter of duplication of parts which was held to have been obvious by In re Harza. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to design the apparatus of Sakurai with more polishing chambers with the same footprint using the suggestion of Kim et al to build the chambers vertically upon one another rather than the convention adjacent to in the horizontal direction. Increasing the number of chambers increases the throughput of the overall system which is an advantage sought after in the manufacturing of semiconductors.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ishida et al (US 5,151,008) teaches a substrate transfer apparatus featuring a first and second transfer robot 20/30 whose center axes 70/72 are offset from one another.

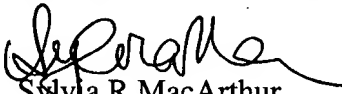
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R. MacArthur whose telephone number is 571-272-1438.

The examiner can normally be reached on M-Th during the hours of 8 a.m. and 4:30 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Sylvia R MacArthur
Primary Examiner
Art Unit 1763

June 6, 2007